

What is claimed is:

1 1. A diffraction pattern intensity analysis method used to analyze intensity of visible light  
2 emitted from a diffraction pattern of a fluorescent screen as a result of reflection  
3 high-energy electron diffraction, comprising the steps of:

4 using a photoreceptor to measure the intensity of the diffraction pattern that  
5 appears on the fluorescent screen, via a halation-prevention filter  
6 with a transmittance which is minimum at a filter center and  
7 increases with distance from the filter center;

8 based on a result of the measurement, obtaining a rate of decrease in the  
9 intensity of the visible light transmitted through the filter; and

10 correcting the diffraction pattern intensity measured by the photoreceptor,  
11 based on the decrease rate.

1 2. The diffraction pattern intensity analysis method of claim 1, in which the transmittance  
2 of visible light transmitted through the filter increases in proportion to  $r^n$ , where  $r$  is  
3 a distance from the filter center.

1 3. A diffraction pattern intensity correction program for use with an image analysis device  
2 having a fluorescent screen for creating a diffraction pattern that results from  
3 reflection high-energy electron diffraction, a photoreceptor for optically acquiring  
4 the diffraction pattern that appears on the fluorescent screen, and a halation-  
5 prevention filter for location along a light path connecting the fluorescent screen  
6 and the photoreceptor, in which a transmittance of the visible light transmitted  
7 through the filter is minimum at a center of the filter and increases with a distance  
8 from the center, the program comprising:

9 a measured intensity storage means for storing an intensity of visible light  
10 emitted from the diffraction pattern on the fluorescent screen as a  
11 result of reflection high-energy electron diffraction, passed through  
12 the halation-prevention filter and detected by the photoreceptor  
13 means;

14 an intensity decrease rate storage means for storing a rate of decrease in the  
15 intensity of the visible light transmitted through the halation-  
16 prevention filter; and

17 a corrected-intensity computation means for computing a corrected  
18 intensity of the diffraction pattern by correcting the intensity stored  
19 by the measured intensity storage means, based on the decrease rate  
20 stored by the intensity decrease rate storage means.

1 4. The diffraction pattern intensity correction program of claim 3, further  
2 comprising:

3 a point light source;

4 an emission controller for controlling the generation of light by the point  
5 light source;

6 an intensity measurement means for measuring, via the photoreceptor, the  
7 intensity of the visible light emitted from the diffraction pattern of  
8 the fluorescent screen and the intensity of the point light source-  
9 emitted visible light that passed through the filter;

10 an intensity decrease rate computation means for computing a rate of  
11 decrease in the intensity of the visible light transmitted through the  
12 filter, based on the intensity of the visible light emitted by the point  
13 light source, that was measured by the intensity measurement  
14 means; and

15 a corrected-intensity computation means that, based on the decrease rate  
16 computed by the intensity decrease rate computation means,  
17 computes the corrected intensity used to correct the intensity of the  
18 visible light emitted from the diffraction pattern of the fluorescent  
19 screen, that was measured by the photoreceptor.